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IS 1783-1 (1993): Drums, Large, Fixed Ends, Part 1: Grade A Drums [MTD 32: Metal Containers]

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IS 1783 (Part 1) : 1993
(Reaffirmed 2005)

भारतीय मानक

बन्द सिरे वाले बड़े ड्रम — विशिष्टि

भाग 1 ग्रेड ए ड्रम

(तीसरा पुनरीक्षण)

Indian Standard

DRUMS, LARGE, FIXED ENDS — SPECIFICATION

PART 1 GRADE A DRUMS

(Third Revision)

First Reprint JUNE 2007
(Including Amendment No 1 & 2)

UDC 621·642·16 : 621·798·144

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

December 1993

Price Group 2

Metal Containers Sectional Committee, MTD 32

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Metal Containers Sectional Committee, had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1961 and subsequently revised in 1974. In its second revision in 1983, it was split into 3 parts to cover Grade A, B and C drums separately in Part 1, 2 and 3 respectively. With the development of triple/spiral seam construction which provides a stronger seam joint so as to withstand any drop caused during the handling and transportation of drums, it was possible to reduce the thickness of the body and ends of Grade B drums. These drums were introduced as an alternative to conventional double seam drums and were, therefore, included under the Grade B as Type 2 in the third revision of Part 2 in 1988. Also Part 3 for Grade C drums was withdrawn in 1990.

In this revision of Part 1, the triple/spiral seam drums with body and ends made out of 1·25 mm thick steel sheets are being included as Grade A Type 2 drums as an alternative to the conventional fully welded Grade A drums. The use of Grade A drums is recommended for petroleum products and other chemicals with flash point below 24°C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

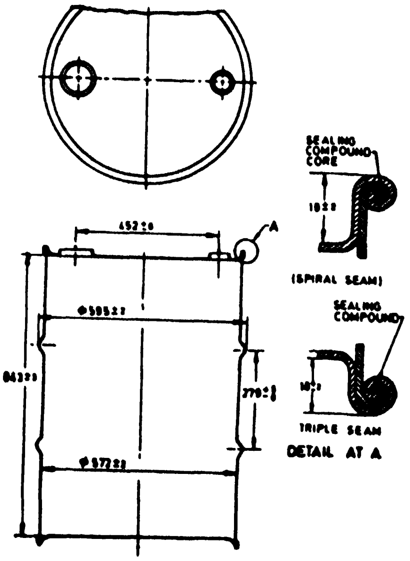
AMENDMENT NO. 1 JULY 1995
TO
IS 1783 (Part 1) : 1993 DRUMS, LARGE, FIXED ENDS — SPECIFICATION

PART 1 GRADE A DRUMS

(Third Revision)

(*Page* 1, *clause* 7.4, *line* 5) — Substitute '5 layers' *for* '7 layers'.

(*Page* 3, *Fig.* 2) — Substitute the following figure for the existing figure:



All dimensions in millimetres

FIG. 2 DRUM WITH TRIPLE/SPIRAL SEAM GRADE A

(MTD 32)

AMENDMENT NO. 2 OCTOBER 2000
TO
IS 1783 (PART 1) : 1993 DRUMS, LARGE, FIXED ENDS — SPECIFICATION

PART 1 GRADE A DRUMS

(Third Revision)

(*Page* 2, *clause* 9.1) — Substitute the following for the existing clause:

'Each drum shall be tested for leakage by either of the methods:

At air pressure of 50 kpa (0.5 kgf/cm$^{2)}$ with seams under water or covered under soap solution. The drum shall not show any sign of leakage or drop in the test pressure when observed for at least 10 sec.

OR

Using special equipment fill the drum with helium, thereafter putting the drum in an air-tight chamber, creating a high vacuum in the annular space between the inner wall of the chamber and outer surface of the drum and thereafter testing for leakage in the drum by checking for presence of helium in the annular space using Mass Spectrometer.

OR

Using special equipment put the drum in an air-tight chamber creating a high vacuum in the annular space between the inner walls of the chamber and outer surface of the drum and thereafter testing for leakage in the drum by observing for any drop in the differential pressure between inside of the drum and outside of the drum.'

(*Page* 4, *clause* 11) — Substitute the following for the existing clause:

'Each drum shall be marked legibly and indelibly with the following particulars by embossing with raised markings or screen printing on the bottom:

a) Indicating the source of the manufacture,

b) Grade and type of the drum, and

c) Any other information as required by the purchaser.'

(MTD 32)

Indian Standard

DRUMS, LARGE, FIXED ENDS — SPECIFICATION

PART 1 GRADE A DRUMS

(Third Revision)

1 SCOPE

This standard covers the requirements for Grade A steel drums of 200 litres nominal capacity with fixed ends with the following types of construction:

a) *Type 1* — Drums of steel sheets of nominal thickness 1·25 mm for body and ends, with end seam resistance welded and double seam construction.

b) *Type 2* — Drums of sheets of nominal thickness 1·25 mm for body and ends, with end seam of triple/spiral seam construction.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	*Title*
513 : 1994	Cold rolled low carbon steel sheets and strips (*fourth revision*)
1394 : 1984	Glossary of terms relating to metal containers (*third revision*)
1784 : 1984	Screwed closures for drums (*second revision*)
3259 : 1966	Methods of sampling of metal containers

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1394 : 1984 shall apply.

4 CAPACITY

The minimum gross capacity of the drums measured with water at ambient temperature shall be 210 litres.

5 DIMENSIONS

The drums of Types 1 and 2 construction shall have dimensions as given in Fig. 1 and Fig. 2 respectively.

6 MATERIAL

6.1 The material for Types 1 and 2 drums shall be as follows:

a) *Type 1* — The body and ends of the drums shall be made from cold rolled carbon steel sheets conforming to Grade 'O', 'D' or 'DD' of IS 513 : 1994.

b) *Type 2* — Body and ends of the drums shall be made from cold rolled carbon steel sheets conforming to Grade 'O' or 'D' of IS 513 : 1994.

6.2 The nominal thickness of steel sheets for body and ends of both types of drums shall be 1·25 mm.

6.3 The sheets and blanks may be phosphatized by any of the recognized processes, if required by the purchaser.

7 CONSTRUCTION

7.1 The sheets shall be blanked and formed to shape. The blanks shall be free from cracks, dents, pittings, rust and other defects.

7.2 The body shall be continuously resistance welded so as to provide air-tight joint.

7.3 Construction for Type 1 Drums

The top and bottom ends shall be fixed to the body by resistance welding and double seaming as shown in Fig. 1.

7.4 Triple/Spiral Seam Construction for Type 2 Drums

The top and bottom ends shall be seamed to the body as shown in Fig. 2. The seam shall have rolled 7 layers of sheets with the sealing compound forming a core at the joint of body and end sheets. The sealing compound forming the core shall be flexible and chemically resistant to the product to be packed.

7.5 The drum shall be provided with 2 rolling beads or hoops, expanded or rolled in the drum body, located as shown in Fig. 1 and 2.

7.6 Closures

The drum shall be fitted either with one screwed closure of 50 mm or with two screwed closures — one of 50 mm and the other of 20 mm as desired by the purchaser. The position of the screwed closures shall be as shown in Fig. 1 and Fig. 2. Screwed closures shall be conforming to IS 1784 : 1984.

8 FINISH

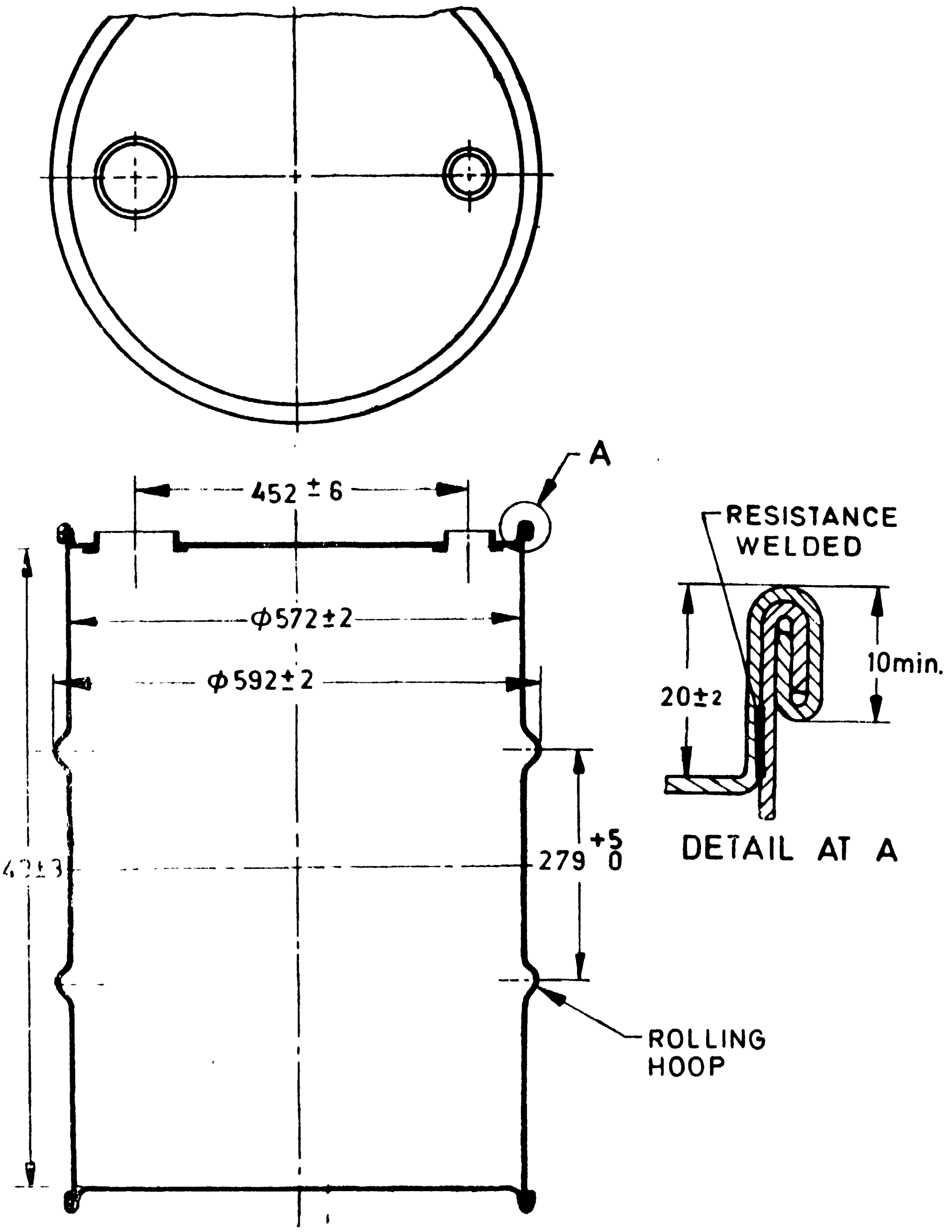
8.1 The drum shall be in clean condition, the inside being free from all traces of rust and foreign matter.

8.2 The inside and outside surfaces of each drum shall be treated as agreed to between the purchaser and the supplier.

9 TESTS

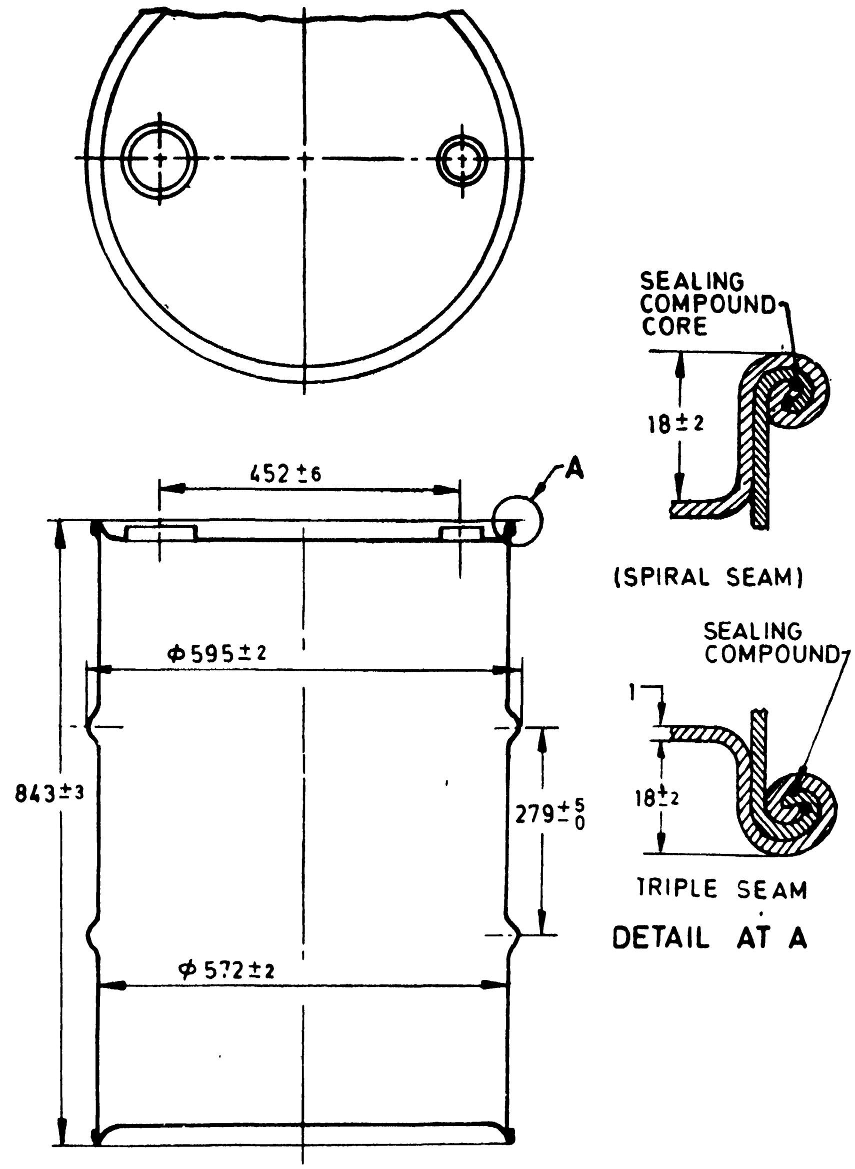
9.1 Leakage Test

Each drum shall be tested for leakage at air pressure of 50 kPa (0·5 kgf/cm^2) with the seams under water or covered with soap solution. The drum shall not show any sign of leakage or drop in the test pressure when observed for at least 10 seconds.



All dimensions in millimetres.

Fig. 1 Drums with Fixed Ends Resistacne Welded Grade A



All dimensions in millimetres.

FIG. 2 DRUM WITH TRIPLE/SPIRAL SEAM GRADE A

9.1.1 If there is a minor leakage found during leakage test it may be manually welded and the drum shall be retested for leakage test. If the leakage is found again, the drum shall be rejected.

9.2 Drop Test

9.2.1 Fill the drum to 98 percent of its gross capacity with water at ambient temperature and close it properly. Suspend the drum with the diagonal in the vertical position and raise it to a height so that the lowest point on the drum is 1·80 m clear off the horizontal striking test surface. The striking surface shall be horizontally plain concrete floor or steel plate at least 40 mm thick. The drum shall be dropped in such a way that it strikes the floor at the bottom rim, at its junction with the side seam. The same drum shall again be dropped so that it strikes the floor at the top rim at its junction with the side seam. Also additional drop test on a separate drum or any other parts which may be considered weaker than the chimb may be carried out if required by the purchaser.

9.2.2 The drum shall be examined for any leakage of water after the test. Any leakage of water shall indicate failure of the drum in the test.

9.2.3 The drum after the test shall be subjected to air leakage test as per **9.1**. The drum shall not show any sign of leakage.

9.3 Hydraulic Pressure Test

The drum shall be subjected to a gradually applied hydraulic pressure of 200 kpa (2·0 kgf/cm^2). This pressure shall be maintained for at least 5 minutes and any leakage of water or drop in the pressure shall indicate failure of the drum in the test.

10 SAMPLING

10.1 Representative samples of the drums for tests regarding dimensions, capacity, construction, finish, air leakage, shall be drawn as prescribed in IS 3259 : 1966.

10.2 One sample from each lot of 2 000 drums shall be subjected to drop test as detailed in **9.2.1** to **9.2.3**.

10.3 One fresh sample from each lot of 2 000 drums shall be selected and subjected to hydraulic pressure test as detailed in **9.3**.

10.4 If the sample tested above fails two more drums from the same lot, shall be subjected to the same test and if any of the two samples fails again, the lot shall be deemed to have failed in the test.

11 MARKING

Each drum shall be marked with the following particulars by embossing on the bottom end or the head with raised markings:

a) Indicating the source of the manufacturer,

b) Grade and type of the drum, and

c) Any other information as required by the purchaser.

12 STANDARD MARK

The drums may also be marked with the Standard Mark.

GMGIPN—84 BIS/ND/07—100

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Amendments Issued Since Publication

Amendment No.	Date of Issue	Text Affected

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